***** CONFIDENTIAL *****
***** PREDECISIONAL DOCUMENT *****

SUMMARY SCORESHEET FOR COMPUTING PROJECTED PROPOSED REVISED HRS SCORE

SITE NAME: Chemonics Lab Division McKenzie

CITY, COUNTY: Phoenix, Maricopa County

EPA ID #: AZD057907883 **Lat/Long:** 33°26'40"/122°03'49"

PROGRAM ACCOUNT #: FAZ0340PAA **T/R/S:** IN5W24

EVALUATOR: Robert Easley **DATE:** August 10, 1990

THIS SCORESHEET IS FOR A: **PA** X **SSI** ____ **LSI** ____

SIRe ____ **PA Redo** ____ **Other (Specify)** ____

RCRA STATUS (check all that apply):

X Generator ___ Small Quantity Generator ___ Transporter ___ TSDF

___ Not Listed in RCRA Database as of (date of printout) ___/___/___

STATE SUPERFUND STATUS:

___ BEP (date) ___/___/___ ___ WQARF (date) ___/___/___

	S pathway	S^2 pathway
Air Migration Pathway Score (S_a)	21.7	470.9
Groundwater Migration Pathway Score (S_{gw})	95	9,025.00
Surface Water Migration Pathway Score (S_{sw})	0	0
On-site Exposure Pathway Score (S_{os})	0	0
$S^2_a + S^2_{gw} + S^2_{sw} + S^2_{os}$	XXXXXXXXXX	9,495.9
$(S^2_a + S^2_{gw} + S^2_{sw} + S^2_{os})/4$	XXXXXXXXXX	2,373.9
$\sqrt{(S^2_a + S^2_{gw} + S^2_{sw} + S^2_{os})/4}$	XXXXXXXXXX	48.7

*Pathways not evaluated (explain): > ____

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AIR MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

	Likelihood of Release	Maximum Value	Projected Score	Rationale	Data Qual.
1.	Observed Release	450			
*2.	Potential to Release (Highest value assigned to any source evaluated)	390	300	a	E
3.	Likelihood of Release (Higher of Lines 1 or 2)	450	300	a	
	Waste Characteristics				
4.	Toxicity/Mobility	100	67	b	E
5.	Hazardous Waste Quantity	100	100	b	E
6.	Waste Characteristics (Lines 4+5)	200	167		
	Targets				
7.	Maximally Exposed Individual	50	50	c	H
*8.	Population	235	31.6	c	H
*9.	Land Use	10	10	c	H
*10.	Sensitive Environments	100	0	c	H
11.	Targets (Lines 7+8+9+10, subject to a maximum of 235)	235	91.6		

Air Pathway Migration Score

12.	Pathway Score (S_a) (Lines $3x6x11/2.115X10^5$)	100	21.7 **	

*Use additional tables.
**S_a is not to be rounded to the nearest integer.

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AIR PATHWAY CALCULATIONS

2. Potential to Release

Source Type	Source Type Factor Value (Table 2-6)	Source Mobility Factor Value (Table 2-10)	Sum	Source Contain. Value (Tables 2-4,2-5)	Emission Source Value
	(A)	(B)	(A + B)	(C)	(A+B) x C
1. Contaminated soils	70	30	100	3	300
2. >	>	>	>	>	>
3. >	>	>	>	>	>
4. >	>	>	>	>	>

8. Population

Distance Category	Distance (miles)	(A) Population	(B) Distance Weight	(A x B)
1	on-site	65	5.265	342.2
2	>0 to 0.25	992	1.0	992
3	>0.25 to 0.5	993	0.1751	173.8
4	>0.5 to 1	11,836	0.0517	611.9
5	>1 to 2	33,704	0.0171	576.3
6	>2 to 3	30,777	0.0083	255.4
7	>3 to 4	40,000	0.0054	216

Air target populations = $\frac{\text{(Sum of AxB)}}{100}$ = 31.6 Sum of (A x B) = 3,167.6

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AIR PATHWAY CALCULATIONS (Cont.)

9. Land Use

Land Use	Distance (miles)	(A) Distance Weight (Table 2-16)	(B) Value For Use Type	(A x B)
Commercial/Industrial/ Institutional	on-site	5.265	5	25
Single Family Residential	0.0568	1.0	8	8
Multiple Family Residential	5	0	10	0
Parks	10	0	5	0
Prime Agricultural	10	0	7	0
Nonprime Agricultural	10	0	5	0
			Sum of (A x B)	33

Land use factor value = Sum of (A X B) Subject to maximum value of 10 = 10

10. Sensitive Environments

Type of Environment	(A) Assigned Value (Table 2-18)	Distance (miles)	(B) Distance Weight (Table 2-16)	(A x B) / 10
>	>	>	>	>
>	>	>	>	>
>	>	>	>	>
>	>	>	>	>
>	>	>	>	>

Sensitive environment factor value = $\frac{\text{Sum of (A x B)}}{10}$ = >

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GROUNDWATER MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors

	Likelihood of Release	Maximum Value	Projected Score	Rationale	Data Qual.
1.	Observed Release	500	500	d	E
*2.	Potential to Release				
	2a. Containment	10			
	2b. Net Precipitation	10			
	2c. Depth to Aquifer/ Hydraulic Conductivity	35			
	2d. Sorptive Capacity	5			
	2e. Potential to Release (Lines 2ax(2b+2c+2d))	500			
3.	Likelihood of Release (Higher of Lines 1 or 2e)	500	500		
	Waste Characteristics				
4.	Toxicity/Mobility	100	90	e	E
5.	Hazardous Waste Quantity	100	100	f	D
6.	Waste Characteristics (Lines 4+5)	200	190		
	Targets				
7.	Maximally Exposed Individual	50	50	g	E
*8.	Population				
	8a. Level I Concentrations	200			
	8b. Level II Concentrations	200			
	8c. Level III Concentrations	200			
	*8d. Potential Contamination	200	200	g	E
	8e. Population (Lines 8a+ 8b+8c+8d, subject to a maximum of 200)	200			
9.	Groundwater Use				
	9a. Drinking Water Use	50			
	9b. Other Water Use	20			
	9c. Groundwater Use (Lines 9a+9b, with a maximum of 50)	50			
10.	Wellhead Protection Area	50			
11.	Targets (Lines 7+8e+9c+10, subject to a maximum of 200)	200			

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Aquifer Evaluated _____

GROUNDWATER MIGRATION PATHWAY SCORESHEET (CONCLUDED)

Factor Categories and Factors

Likelihood of Release	Maximum Value	Projected Score	Rationale	Data Qual.
12. Aquifer Score [Lines 3x6x11)/2x10^5]**	100	95		

Groundwater Migration Pathway Score

13. Pathway Score (Sgw), (Highest Value from Line 12 for all aquifers evaluated)	100	95	**

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* Use additional tables

** These scores are not to be rounded to the nearest integer.

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Aquifer Evaluated _____

GROUNDWATER PATHWAY CALCULATIONS (Cont.)

8. Population

Potential Contamination

Dilution Weighting Factor (DW)

Distance (miles)	Karst	All Others	(P) Population	(DW x P)
0 to 1/4	1.00	1.00	>	>
>1/4 to 1/2	0.62	0.62	>	>
>1/2 to 1	0.50	0.32	>	>
>1 to 2	0.50	0.18	>	>
>2 to 3	0.50	0.13	900,000	117,000
>3 to 4	0.50	0.08	>	>
			Sum (DW x P)	117,000

Potential contamination = $\frac{\text{Sum(DW x P)}}{100}$ = 1,170

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Aquifer Evaluated _____

SURFACE WATER MIGRATION PATHWAY SCORESHEET

Factor Categories and Factors	Maximum Value	Projected Score	Rationale	Data Qual.
DRINKING WATER THREAT				
Likelihood of Release				
1. Observed Release	120	0	h	H
2. Potential to Release by Overland Flow				
2a. Containment	10			
2b. Runoff	6			
2c. Distance to Surface Water	6			
2d. Potential to Release by Overland Flow (Lines 2ax(2b+2c))	120			
3. Potential to Release by Flood				
3a. Containment (Flood)	10			
3b. Flood Frequency	12			
3c. Potential to Release by flood (Lines 3ax3b)	120			
4. Potential to Release (Lines 2d+3c, subject to a maximum of 120)	120			
5. Likelihood of Release (Higher of Lines 1 or 4)	120			
Waste Characteristics				
6. Toxicity/Persistence	100			
7. Hazardous Waste Quantity	100			
8. Waste Characteristics (Lines 6+7)	200			
Targets				
9. Maximally Exposed Individual	50			
*10. Population				
10a. Level I Concentrations	200			
10b. Level II Concentrations	200			
10c. Level III Concentrations	200			
10d. Potential Contamination	200			
10e. Population (Lines 10a + 10b+10c+10d, subject to a maximum of 200)	200			

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SURFACE WATER MIGRATION PATHWAY SCORESHEET (CONTINUED)

Factor Categories and Factors		Maximum Value	Projected Score	Rationale	Data Qual.
ENVIRONMENTAL THREAT					
29.	Likelihood of Release (Same Value as Line 5)	120			
	Waste Characteristics				
30.	Ecosystem Toxicity/Persistence	100			
31.	Hazardous Waste Quantity	100			
32.	Waste Characteristics (Lines 30+31)	200			
	Targets				
*33.	Sensitive Environments				
	33a. Level I Concentrations	120			
	33b. Level II Concentrations	120			
	33c. Potential Contamination	120			
	33d. Sensitive Environments subject to a maximum of 120)	120			
34.	Targets (Value from Line 33)	120			
	Environmental Threat Score				
35.	Environmental Threat (Lines 29x32x34)	2.88×10^6			

SURFACE WATER MIGRATION PATHWAY SCORE FOR A WATERSHED

36.	Watershed Score [(Lines 13+21+35)/48,000 subject to a maximum of 100]	100	**

SURFACE WATER MIGRATION PATHWAY SCORE

37.	Pathway Score (Sgw), (Sum of scores from Line 36 for all watersheds evaluated, subject to a maximum of 100)	100	0 **

* Use additional tables.

** These scores are not to be rounded to the nearest integer.

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ON-SITE EXPOSURE PATHWAY SCORESHEET

Factor Categories and Factors

Resident Population Threat	Maximum Value	Projected Score	Rationale	Data Qual.
1. Likelihood of Exposure	100			
2. Waste Characteristics	5			
3. Targets				
3a. High-Risk Population	100			
3b. Total Resident Population	100			
3c. Terrestrial Sensitive Environments	25			
3d. Targets (Lines 3a+3b+3c, subject to a maximum of 100)	100			
4. Resident Population Threat Score (Lines 1x2x3d)	50,000			
Nearby Population Threat				
5. Likelihood of Exposure				
5a. Waste Quantity	100	15	i	E
5b. Accessibility Frequency of Use	100	25	i	H
5c. Likelihood of Exposure	100	0		
6. Waste Characteristics	5	5		E
*7. Targets				
7a. Population Within 1-Mile	100	100		
7b. Targets (Line 7a, subject to a maximum of 100)	100	100		
8. Nearby Population Threat Score (Lines 5cx6x7b)	50,000	0		
On-site Exposure Pathway Score				
9. On-site Exposure Pathway Score (Sos) (Lines [4+8]/500, to a maximum of 100)	100	0 **		

* Use additional table.
**These scores are not to be rounded to the nearest integer.

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ON-SITE EXPOSURE CALCULATIONS

7. Nearby Population Targets

Distance (miles)	(A) Multiplier	(P) Population	(A x P)
0 to 1/4	0.10	992	99.2
>1/4 to 1/2	0.05	993	49.6
>1/2 to 1	0.025	11,836	295.9
		Sum (A x P)	444.7

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HRS Rationalization

a. The potential to release to air is based on soil contaminated with lindane, DDT, chlordane, dieldrin, and toxaphene. While soil sampling has documented pesticide soil contamination in a 130 yard by 25 yard area to a depth of 2.5 feet below ground surface (bgs), it is likely that the soils are contaminated in a 140 yard by 60 yard area and as deep as 6.0 feet bgs. Thus, the site has an estimated 16,800 cubic yards of contaminated soil.

b. The toxicity/mobility is based on the presence of lindane, DDT, chlordane, dieldrin, and toxaphene in the soil. Approximately 16,800 cubic yards of contaminated soil exist at the site, which gives a hazardous waste quantity of less than 10. Thus, hazardous waste quantity is based on thirty 55-gallon drums (1,650 gallons) containing approximately 20% cyanide. DHS has also documented spills of paint solvent and diesel fuel on site. In one inspection DHS observed three perforated drums. However, waste stream constituent data is lacking and therefore the hazardous waste quantity value for these drums would not result in a value greater than 10.

c. The closest house is 100 yards from the site. Approximately 50 employees work at the site. No sensitive environments live within 4 miles of the site.

d. For scoring purposes, this site was conservatively assumed to have contributed to groundwater contamination observed near the site. Thus, the distance to the nearest well, which is located 2.7 miles northwest of the site, is the distance to a municipal well which has been closed due to VOC contamination.

e. Toxicity/Mobility is based on the presence of 1,1-dichloroethane, tetrachloroethene, trichloroethene, 1,1-dichloroethane, 1,1-trichloroethane, 1,1,2,2-tetrachloroethane, toluene, and dibromochloromethane in the groundwater near the site.

f. Hazardous waste quantity is based on thirty 55-gallon drums (1,650 gallons) containing approximately 20% cyanide. A total of 1,781 gallons of waste oil and paint solvents have also been documented on site. In addition, DHS has observed three perforated drums containing either diesel fuel or waste paint on site. However, constituent data (wastestream data) is lacking for these drums and thus would not result in a hazardous waste quantity value greater than 1.

g. For scoring purposes, this site was conservatively assumed to have contributed to groundwater contamination which resulted in the closing of drinking water wells less than 1 mile from the site. Municipal wells in Phoenix are part of a blended system which serve a population in Phoenix of 1 million people.

h. The closest surface water to the site is the Salt River. The Salt River is not used for drinking water and, within 15 miles of the site, does not support any sensitive species. The Salt River is usually dry and fishing in the Salt River is not recommended by the U.S. Fish and Game.

i. Approximately 75,600 square feet of pesticide contaminated soils exist at the site. Access to the site is prevented by a chain-link fence surrounding the site and by a security guard on site 24 hours a day. Toxicity is based on the presence of lindane, chlordane, DDT, dieldrin, and toxaphene in the on-site soils.